CLAIMS

1   1. A collision recovery signal processing unit for use with a multiple-access

2   telecommunications channel comprising antenna means 50 having a plurality of branches;

3   a plurality M of spatio-temporal filter means 52, 54 each arranged to estimate a signal

4   received by the antenna means by application of a different sequence of training-like

5   symbols TLS and to supply a corresponding candidate signal, SC1 to SCM; and signal

6   selector means 56 arranged to select from the candidate signals one or more signals in

7   accordance with a predetermined criterion.

1   2. A signal processing unit according to Claim 1 in which training symbols are

2   processed in addition to said training-like symbols.

1   3. A signal processing unit according to Claim 1 in which the pre-determined

2   criterion is the distance of a candidate signal from the finite alphabet.

1   4. A signal processing unit according to Claim 3 in which the filter means 52, 54

2   each operate on a number of information signals T received from the antenna means, in

3   which the finite alphabet has h symbols, and the number M of filter means is given by

4    $M=h^{T}$.

1   5. A signal processing unit according to Claim 1 in which the predetermined

2   criterion is the mean square error of the candidate signals.

1   6. A signal processing unit according to Claim 1 further comprising a plurality of

2   captured signal estimators 58, 60 arranged to receive the selected signals, and a different

3   signal selector 62.

1   7. A signal processing unit according to Claim 1 in which each spatio-temporal

2   filter means 52, 54 runs the same training-based or semiblind algorithm.

1   8. A radio telecommunications system comprising a plurality of time critical users

2   mn; encoder means 76 to encode signals from said users into a plurality of timeslots 10,

12

3 12; first transmitter/receiver means; second transmitter/receiver means 50; decoder means

4 86; and a data or speech sink 88; wherein connected to the second transmitter/receiver

5 means 50 there is signal processing unit comprising antenna means 50 having a plurality

6 of branches; a plurality M of spatio-temporal filter means 52, 54 each arranged to

7 estimate a signal received by the antenna means by application of a different sequence of

8 training-like symbols TLS and to supply a corresponding candidate signal, SC1 to SCM;

9 and signal selector means 56 arranged to select from the candidate signals one or more

10 signals in accordance with a predetermined criterion.

1 9. In a time critical telecommunications system having a multiple access channel

2 in which collisions may occur, a method of collision resolution comprising the steps of

3 receiving signals from the multiple access channel by an antenna having a plurality of

4 branches; estimating received signals by application of a plurality of different sequences

5 of training-like symbols to provide a plurality of candidate signals; and selecting one or

6 more candidate signals in accordance with a predetermined criterion.